

AMENDMENTS IN THE CLAIMS

1. (currently amended) In a storage area network (SAN) computer system having a volume group made up of one or more physical disks, a method for providing SAN boot devices, said method comprising:

storing a boot image from a primary boot device on at least one disk within said volume group;

copying boot install images from said first boot device to multiple disks within the volume group, whereby each disk of said multiple disks within said volume group may independently serve as the boot device for the SAN system and a boot process may be initiated for the SAN system from any one of the multiple disks in the volume group, wherein the SAN system is a single, bootable computer system;

switching a boot sequence from a first boot device, which corresponds to the primary boot device and is external to said volume group, to the at least one disk within said volume group, wherein said switching step comprises:

monitoring for an occurrence of a predefined condition on said SAN system; and

initiating said switching when one of a plurality of said predefined condition occurs, wherein said predefined conditions include: (1) receiving an error signal from the first boot device when a boot up is desired; (2) being unable to access said first boot device when the boot up is desired; (3) encountering a failure on said SAN computer system that results in a shut down of said system; and (4) system administrative directive to re-boot system from a selected one of said at least one disk; [[and]]

subsequently completing a full boot[[ing]] of the SAN system from the boot image stored on the at least one disk, wherein the SAN system's boot operation is completed from within said volume group, rather than from the primary boot device, from which the boot image is copied to the at least one disk;

reading of the boot image at SAN speed, wherein further no boot images are pulled from across the network;

installing images from the boot logical volume at said SAN speed; and

wherein when one of a system failure and a system recovery from a corrupted boot image on a primary disk occurs, said switching further comprises:

booting up the SAN system in maintenance mode;
generating a prompt for a system administrator to select the boot device from
among a displayed list of available boot devices; and
automatically encoding the identification and routing information of the selected
boot device in a BIOS (basic input/output system) path for accessing the boot device to
complete a boot of the SAN system, wherein the boot device selected is the at least one
disk within the volume group.

2. (canceled)

3. (original) The method of Claim 1, wherein said storing step comprises:
selecting the at least one physical disk on which to copy the boot install images;
selecting particular boot install images to copy to said at least one physical disk, wherein
less than all of said boot install images may be selected for copying.

4. (original) The method of Claim 1, wherein said storing step further comprises:
building the boot image on a computer system associated with said SAN; and
uploading the boot image to said logical volume.

5 - 7. (canceled)

8. (original) The method of Claim 1, further comprising:
selecting a first one of said at least one physical disk as a first boot disk from which said
boot process is to be completed; and
when a subsequent boot from the selected first boot disk fails and there are additional
disks within the logical volume, automatically selecting a second boot disk to complete the boot
process, wherein said automatic selecting selects a subsequent boot device based on a pre-
established selection order for selecting SAN boot devices when one of the set of predefined
conditions occur.

9. (canceled)

10. (original) The method of Claim 1, wherein responsive to an occurrence of a corrupted boot logical volume (LV) on a primary boot disk, said method comprises:

pointing the system at the install volume group; and

initiating an boot installation process to import the install volume group and install the base operating system (BOS) image, which in turn installs the proper devices and optional OPP support desired.

11. (original) The method of claim 1, wherein, when an administrator desires to install new optional programming parameters (OPPs), said method further comprises:

importing the install volume group;

mounting the file system hosted on said volume;

installing the OPP images;

updating a table of contents file for the file system;

dismounting the file system; and

exporting the volume group.

12. (currently amended) A storage area network (SAN) data processing system, comprising:

SAN fabric connection;

an input/output (I/O) device;

a logical volume comprised of one or more physical storage devices that are accessible on the SAN via the SAN fabric connection;

a processor;

program means/code executing on the processor to provide a series of management functions associated with the logical volume, said program means including:

means for providing a copy of a boot device on at least one of the storage devices in said logical volume, wherein said copy enables a complete boot of said SAN system from within the logical volume at SAN speed;

program code for selecting the at least one physical storage device on which to copy the boot install images;

program code for selecting particular boot install images to copy to said at least one physical storage device, wherein less than all of said boot install images may be selected for copying;

program code for copying boot install images from said first boot device to multiple storage devices within the volume group, whereby each storage device of said multiple storage devices within said volume group may independently serve as the boot device for the SAN system and a boot process may be initiated from any one of the multiple storage devices in the volume group, wherein the SAN system is a single, bootable computer system; and

program code for updating a table that provides a list of all boot devices accessible to said SAN system, including each storage device to which a the boot install image is copied;

means for switching a boot sequence from a first boot device to the at least one disk within said volume group, wherein the first boot device corresponds to a primary boot device from which the boot image is copied to the at least one disk and is external to said volume group; and

means for booting said SAN system by installing images from the boot logical volume at said SAN speed, rather than from the primary boot device;

program code for monitoring for an occurrence of a predefined condition on said SAN system;

program code for initiating said switching when one of a plurality of said predefined condition occurs, wherein said predefined conditions include: (1) receiving an error signal from the first boot device when a boot up is desired; (2) being unable to access said first boot device when the boot up is desired; (3) encountering a failure on said SAN computer system that results in a shut down of said system; and (4) system administrative directive to re-boot system from a selected one of said at least one disk;

program code for booting up the SAN system in maintenance mode;

program code for generating a prompt for a system administrator to select the boot device from among a displayed list of available boot devices; and

program code for automatically encoding the identification and routing information of the selected boot device in a BIOS (basic input/output system) path for accessing the boot device to complete a boot of the SAN system, wherein the boot device selected is the at least one disk within the volume group.

13. (currently amended) The SAN system of Claim 12, wherein each storage device has a unique ID, said SAN system further comprising:

a BIOS; and

a mechanism for powering said SAN system on and off, wherein a boot is initiated by said BIOS from a boot image stored on said at least one storage device whenever the SAN system is turned on from an off state.

14 - 17. (canceled)

18. (original) The SAN system of Claim 12, further comprising program code for:

enabling selection of a first one of said at least one physical disk as a first boot disk from which said boot process is to be completed; and

when a subsequent boot from the selected first boot disk fails and there are additional disks within the logical volume, automatically selecting a second boot disk to complete the boot process, wherein said automatic selecting selects a subsequent boot device based on a pre-established selection order for selecting SAN boot devices when one of the set of predefined conditions occur.

19. (original) The SAN system of Claim 12, wherein responsive to an occurrence of a corrupted boot logical volume (LV) on a primary boot disk, said system further comprises program code for:

pointing the system at the install volume group; and

initiating an boot installation process to import the install volume group and install the base operating system (BOS) image, which in turn installs the proper devices and optional OPP support desired.

20. (original) The SAN system of claim 12, wherein when an administrator desires to install new optional programming parameters (OPPs), said system further comprises program code for:

importing the install volume group;

mounting the file system hosted on said volume;

installing the OPP images;

updating a table of contents file for the file system;
dismounting the file system; and
exporting the volume group.

21. (currently amended) A computer program product, comprising:
a tangible computer readable storage medium; and
program code stored on said computer readable storage medium that when executed by a processor enables a system administrator to access a boot device and copy boot install images from the boot device to a physical disk on a SAN for which a logical volume is provided, wherein said physical disk serves as a boot device for said logical volume during subsequent boot;

wherein said program code further comprises code for:

storing a boot image from a boot device on at least one disk within said volume group;

selecting a default boot device from among available boot devices, wherein a boot device within the logical volume is selected and a path to said default device is automatically encoded in the BIOS path;

switching a boot sequence from a first boot device to the [[at least one disk]] default boot device within said volume group, wherein the first boot device corresponds to a primary boot device from which the boot image is copied to the at least one disk and is external to said volume group;

booting up the SAN system in maintenance mode;

generating a prompt for a system administrator to select the boot device from among a displayed list of available boot devices; and

automatically encoding the identification and routing information of the selected boot device in a BIOS (basic input/output system) path for accessing the boot device to complete a full boot of the SAN system, wherein the boot device selected is the at least one disk within the volume group;

displaying a graphical user interface (GUI), wherein said GUI displays a list of available boot install devices and enables a system administrator to manually select which device among the list of available boot install devices to utilize as a boot install

device, and wherein further said GUI enables a system administrator to set up a physical volume to receive a copy of said boot image;

monitoring for an occurrence of a predefined condition on said SAN system; and
initiating said switching when one of a plurality of said predefined condition
occurs;

wherein said predefined conditions include: (1) receiving an error signal from the
first boot device when a boot up is desired; (2) being unable to access said first boot
device when [[a]] the boot up is desired; (3) encountering a failure on said SAN computer
system that results in a shut down of said system; and (4) system administrative directive
to re-boot system from a selected one of said at least one disk; and

subsequently completing a full boot[[ing]] of the SAN system from the boot
image stored on the at least one disk, wherein the SAN system's boot operation is
completed from within said logical volume.

22 - 23. (canceled)